NewsRelease

National Aeronautics and
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For Release: March 5, 2001

RELEASE NO. 01-014

NASA PLANES TO FLY FROM HONG KONG, JAPAN

Researchers trace evolving air chemistry over Pacific

Spring has arrived in the Far East and so have the research planes, scientists and their equipment. It is the beginning of the greatest seasonal airflow from Asia across the Pacific and an ideal time to collect data for the latest in a series of NASA atmospheric science missions used to study how natural and human-induced changes affect our global climate.

The Transport and Chemical Evolution over the Pacific (TRACE-P) experiment, headed by NASA Langley Research Center in Hampton, Va., is scheduled for March through April. TRACE-P will use two specially equipped NASA aircraft to measure gases and identify the chemical makeup of air off the East Asian coast over the Pacific. The mission will start its 45-day operations from Hong Kong and finish out of Yokota Air Force Base near Tokyo.

In addition to the Dryden flight Research Center DC-8 and the P-3B from Wallops Flight Facility, scientists will gather information from ground stations and satellites to plan flight patterns and interpret measurements taken on the aircraft.

"While NASA administers the TRACE-P program, it's important to realize all of the expertise that's necessary to make the measurements on these aircraft," said Dr. Jim Crawford, TRACE-P deputy mission scientist and NASA Langley researcher. "We have to bring together researchers from international universities, other government labs and from within NASA to make an adequate assessment of what's happening over the Pacific."

A major goal of TRACE-P is to understand the chemical makeup and reactions of air coming from Asia. Researchers want to study how the chemical reactions and movement affect the air as it moves away from Asia across the Pacific. With the rapid industrialization and increased energy use -- mostly in the form of fossil fuels -- scientists expect emissions to increase as East Asia continues to develop.

"Out of all the industrialized regions in the world, North America and Europe are at a much higher latitude," Crawford added. "And since air chemistry is driven by sunlight, the Asian emissions happening at a tropical latitude potentially have a very different chemical evolution."

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TRACE-P is part of the long series of NASA Global Tropospheric Experiments (GTE) and a follow-up to earlier atmospheric science investigations in 1991 and 1994. These exploratory missions studied the Asian outflow -- air flowing over the continent to and across the Pacific — and how seasons and geography affect the chemistry and movement of air.

GTE is aimed at a better understanding of worldwide chemistry of the troposphere -- the part of the atmosphere closest to the Earth's surface. Over the past twenty years, GTE has conducted missions in the Amazon, the Arctic, the tropical Atlantic, and the Pacific to study both natural and man-made processes that determine the troposphere's chemical make-up.

This international research effort is part of NASA Headquarters Office of Earth Sciences Enterprise, Washington, D.C. The Enterprise is a long-term research effort dedicated to study the Earth System and how it is changing due to both natural and human-induced processes.

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